

## **Performance Task: Graphing with Classmates**



### **TEXAS STANDARDS FOR MATHEMATICAL CONTENT**

- 1.8A** collect, sort, and organize data in up to three categories using models/representations such as tally marks or T-charts

### **TEXAS STANDARDS FOR MATHEMATICAL PRACTICE**

- *Apply mathematics to problems arising in everyday life, society, and the workplace*
- *Use a problem solving model*
- *Select tools, including real objects, manipulatives, paper and pencil, and technology as appropriate, and techniques, including mental math, estimation, and number sense, as appropriate, to solve problems*
- *Communicate mathematical ideas, reasoning and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate*
- *Create and use representations to organize, record, and communicate mathematical ideas*
- *Analyze mathematical relationships to connect and communicate mathematical ideas*
- *Display, explain, and justify mathematical ideas and arguments using precise mathematical language in written or oral communication*

### **BACKGROUND KNOWLEDGE**

Students should have had prior experiences and/or instruction with classifying and counting objects in a category in Kindergarten and previous tasks. Creating tally charts was not a standard in kindergarten; however, some students may be familiar with using tally marks to keep track of information for graphing.

Van de Walle stated that the use of graphs for number relationships and for connecting numbers to real quantities in the children's environment is a more important reason for building graphs than the graphs themselves (page 60).

### **ESSENTIAL QUESTIONS**

- How can we collect data?
- What information can we get from a chart?
- How do tables and charts help us organize our thinking?

## **MATERIALS**

- Recording Sheet
- Chart paper to display Special Snack charts
- markers
- *Best Vacation Ever* by Stuart Murphy or similar book

## **GROUPING**

Individual, Whole Group

## **TASK DESCRIPTION, DEVELOPMENT AND DISCUSSION**

### **Part I**

Gather the students in a common space. Read *The Best Vacation Ever* by Stuart Murphy, or a similar text. Why is the girl using charts in the story? How are these charts going to help her? Discuss how the decisions are made in the story. How can charts help us in the classroom? Tell the students that you are going to create 3 charts to decide on the best option for a Special Snack. Explain that the students will close their eyes and vote by raising their hands. This prevents students from voting by persuasion. Ask the 3 questions below and fill in the responses on the students. After the charts are complete show the students. Ask them how to find the total amount in each column. The column with the largest number is the majority for that chart. Guide the students in making a tally chart to show the data collected for each question. Allow a class discussion to decide on the best option for a Special Snack. The teacher may provide this snack as a special reward that the students must earn.

### ***1. Would you like something sweet or salty?***

Student Name or Number	Sweet	Salty
1		
2		
3...continue for number of students in the class		

### ***2. Would you like something soft and chewy or hard and crunchy?***

Student Name	Soft/Chewy	Hard/Crunchy
1		
2		
3...continue for number of student in the class		

### 3. *Would you like one big piece or several small pieces?*

Student Name	Big Piece	Small Pieces
1		
2		
3...continue for number of students in the class		

#### Part II

Students will create their own question to ask classmates that have at least three categories to represent. Allow them to ask 6 students the question about their graph. You may group the students or have them choose their own classmates to survey. The students will begin by filling out the title, question and three answer choices on their recording sheet. Once all of the student forms have been checked, they may find classmates to ask their question. Students need to make sure that they are giving 3 answer choices for the students to choose from. When the students have had ample time to collect the data, the teacher will call time. Students will then return to their seats to interpret the data they have collected. Use chart paper to create a list of questions students may ask each other. Use the questions below as a guide. On the back of the Data Collections recording sheet, have students create a tally chart to show their results.

#### FORMATIVE ASSESSMENT QUESTIONS

- Which group had the most? Least?
- Can you tell me more about the charts?
- What are two questions you could ask the class to answer about your graph?
- Can you explain your chart to the class?
- Can you determine common features about charts? (most, least, total number of objects, etc.)
- Explain how charts and tables help organize your thinking?
- Can you formulate questions to ask about a graph?
- Can you answer questions about your own graph?

#### DIFFERENTIATION

##### Extension

- Students may extend the data collection process to 10 different students. Try to create 4 questions about your data that other students could answer.

##### Intervention

- Some students may need assistance in identifying a question or answer choices for collecting the data. Offer multiple examples for students to use.

Name: \_\_\_\_\_

Date: \_\_\_\_\_

**Data Collection**

Title: \_\_\_\_\_

Question: \_\_\_\_\_

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Student Names	Choice1: _____	Choice2: _____	Choice3: _____
1.			
2.			
3.			
4.			
5.			
6.			

Write 2 questions that you could ask someone about your data.

1. \_\_\_\_\_

\_\_\_\_\_

2. \_\_\_\_\_

\_\_\_\_\_